REMARKS

Status of the Claims

Currently claims 15-20, 23-24, 51-53 and 55-63 are pending. Claims 1-14, 21, 22, 25-50, 54 and 64-70 stand withdrawn. Applicants respectfully request the Examiner to reconsider and withdraw the outstanding rejections in view of the foregoing amendments and the following remarks.

Claim Rejections Under 35 U.S.C. §103

Claims 15-20 and 53 stand rejected under 35 U.S.C. § 103, as purportedly obvious over Pappin et al. (*Current Biology*, 1993, vol. 3, No. 6, pages 327-332 ("Pappin")) in view of Patchett (Abstracts of Papers, 222nd ACS National Meeting, Chicago, IL, United States, August 26-30, 2001). The Office argues that Pappin discloses mass spectrometry procedures for producing peptide mass fingerprints. The Office notes that Pappin fails to disclose capping amino acids in peptide analysis, but argues that it would have been obvious to the skilled artisan to include capped amino acids in the peptide mass fingerprinting procedure of Pappin in light of Patchett.

Applicants submit that it would not have been obvious to one of skill in the art to consult Patchett upon reviewing Pappin. Patchett is directly to synthetic chemistry, and does not provide any discussion regarding the analytical methods used for characterizing peptides and polypeptides. Specifically, Patchett discloses methods of producing small molecule agonists by derivatising privileged structures with capped amino acids and dipeptides.

However, even if the skilled artisan did combine Patchett with Pappin, they would still not arrive at the present invention. Although Patchett may disclose that amino acids and

dipeptides can be capped in some way, Patchett only teaches that these capped amino acids and dipeptides may be useful for derivatizing small molecules. Patchett does not disclose that capping amino acids and peptides is useful for characterising polypeptides, especially with regard to producing a mass fingerprint of a polypeptide.

In addition, no details about the capping of the amino acids and dipeptides is provided by Patchett. Patchett is merely an abstract of conference proceedings before the ACS. Neither the Patchett abstract nor Pappin provide suggestion that a capping reagent should be used which reacts with ε-amino groups of lysine residues, as required by the presently pending claims.

In present claims 15-20 and 53, after the step of capping the one or more ε-amino groups, the polypeptide analyte is labelled with a light absorbing label which is subsequently embedded in a matrix, desorbed from the surface by exposure to light and detected and characterising by mass spectrometry. No hint or suggestion is provided in either Pappin or Patchett that the method of characterising the polypeptide analyte should involve a step of labelling the analyte with a light absorbing label. The presence of a light absorbing label attached to the analyte causes the labelled analyte molecule to absorb energy, which in turn aids in energising the analyte to bring it into the gaseous phase where it can be detected in the mass spectrometer. Thus, the efficiency of desorption in MALDI mass spectrometry method is increased, improving the sensitivity of the method and increasing the number of peptides that are detected from a particular polypeptide or protein (see the final paragraph of page 7 and the first paragraph of page 8 of the present specification). Accordingly, claims 15 to 20 and 53 are not obvious in view of Pappin in view of Patchett.

Claims 23, 24, 51, 52 and 55 to 63 stand rejected under 35 U.S.C. § 103 as purportedly obvious over Pappin in view of Patchett, and further in view of Schmidt et al (Wo 98/32876). Applicants note that all of these claims are at least dependent upon claims 15, 16, 17 or 19. Thus, the subject matter of these claims is not obvious over Pappin in view of Patchett for at least the reasons mentioned above.

Schmidt does not remedy the deficiencies of Pappin and Patchett. One of skill in the art would not have combined the teachings of these three separate prior art documents in order to arrive at the present invention. Instead, the Office is using improper hindsight. Even if one of skill in the art combined all three references, they would not have arrived at the present invention as none of Pappin, Patchett or Schmidt disclose methods for characterising polypeptides which comprise a step of capping one or more ε-amino groups with a lysine reactive agent. While Schmidt discloses at page 4 "a blocking agent to block all exposed reference groups, which comprise either carboxy groups or primary amine groups", this document provides suggestion that the blocking agents should be specific to the ε- amino groups of lysine residues.

Further, the cited references even in combination fail to disclose that the method of characterising the polypeptide analyte comprises a step of labeling the analyte with a light absorbing label as required by the methods (according to claim 23, 24, 51, 52 and 55 to 63). No suggestion of the use of light absorbing labels is provided in any of the cited references, nor of the particular improvements in the sensitivity of the methods provided by the use of such labels (see paragraphs 1-8 of the present specification). Thus, Applicants submit that claims 23, 24, 51, 52 and 55 to 63 are not obvious over Pappin in view of Patchett and Schmidt.

In light of the above, Applicants request that the rejections under 35 U.S.C. § 103 be withdrawn.

Conclusion

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #103895.B600304).

Respectfully submitted,

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Deborah H. Yellin
Registration No. 45,904

CROWELL & MORING LLP
Intellectual Property Group
P.O. Box 14300
Washington, DC 20044-4300
Telephone No.: (202) 624-2500
Facsimile No.: (202) 628-8844
TSR/DHY/hk